FIG.1

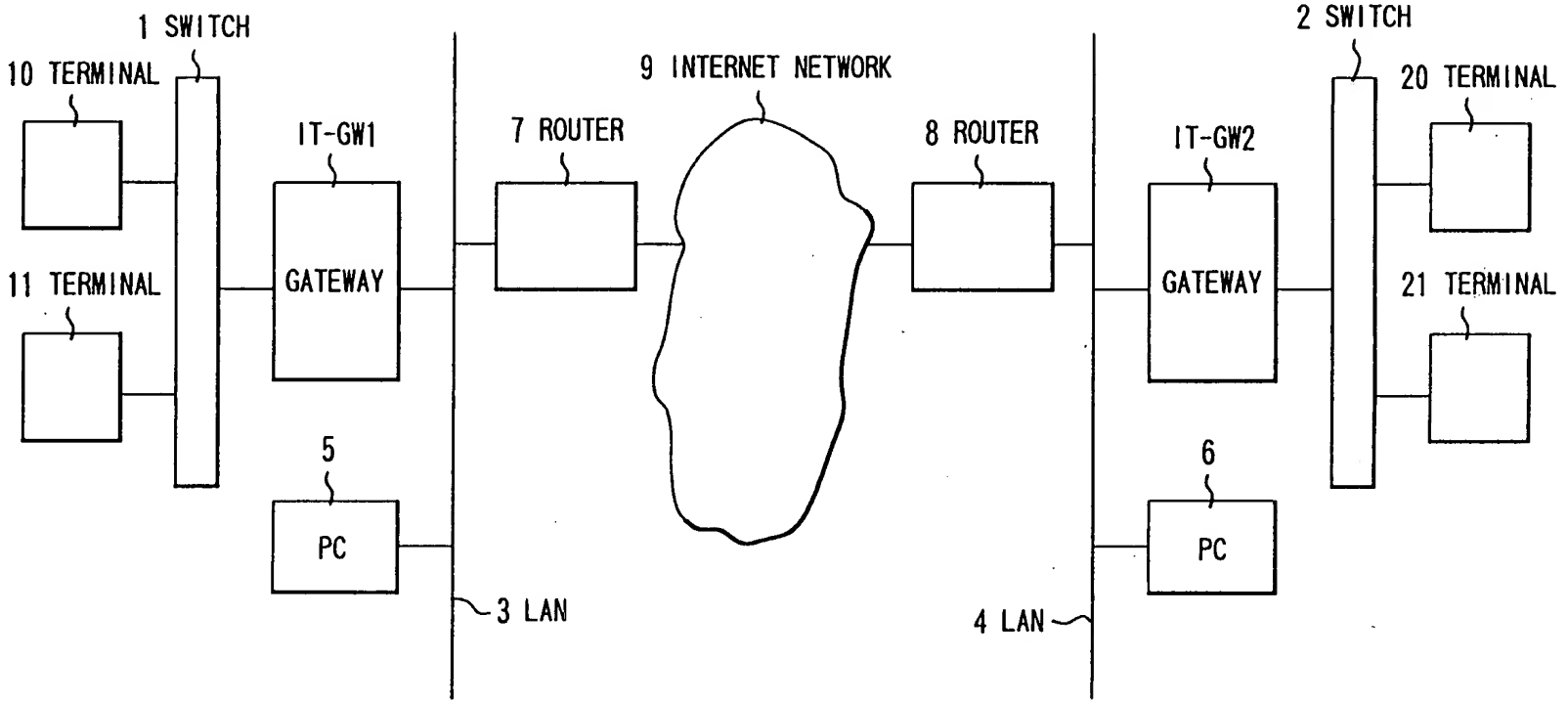

1 SWITCH
10 TERMINAL
11 TERMINAL
IT-GW1
GATEWAY
5
PC
3 LAN
7 ROUTER
9 INTERNET NETWORK
8 ROUTER
4 LAN
IT-GW2
GATEWAY
6
PC
2 SWITCH
20 TERMINAL
21 TERMINAL

FIG.2

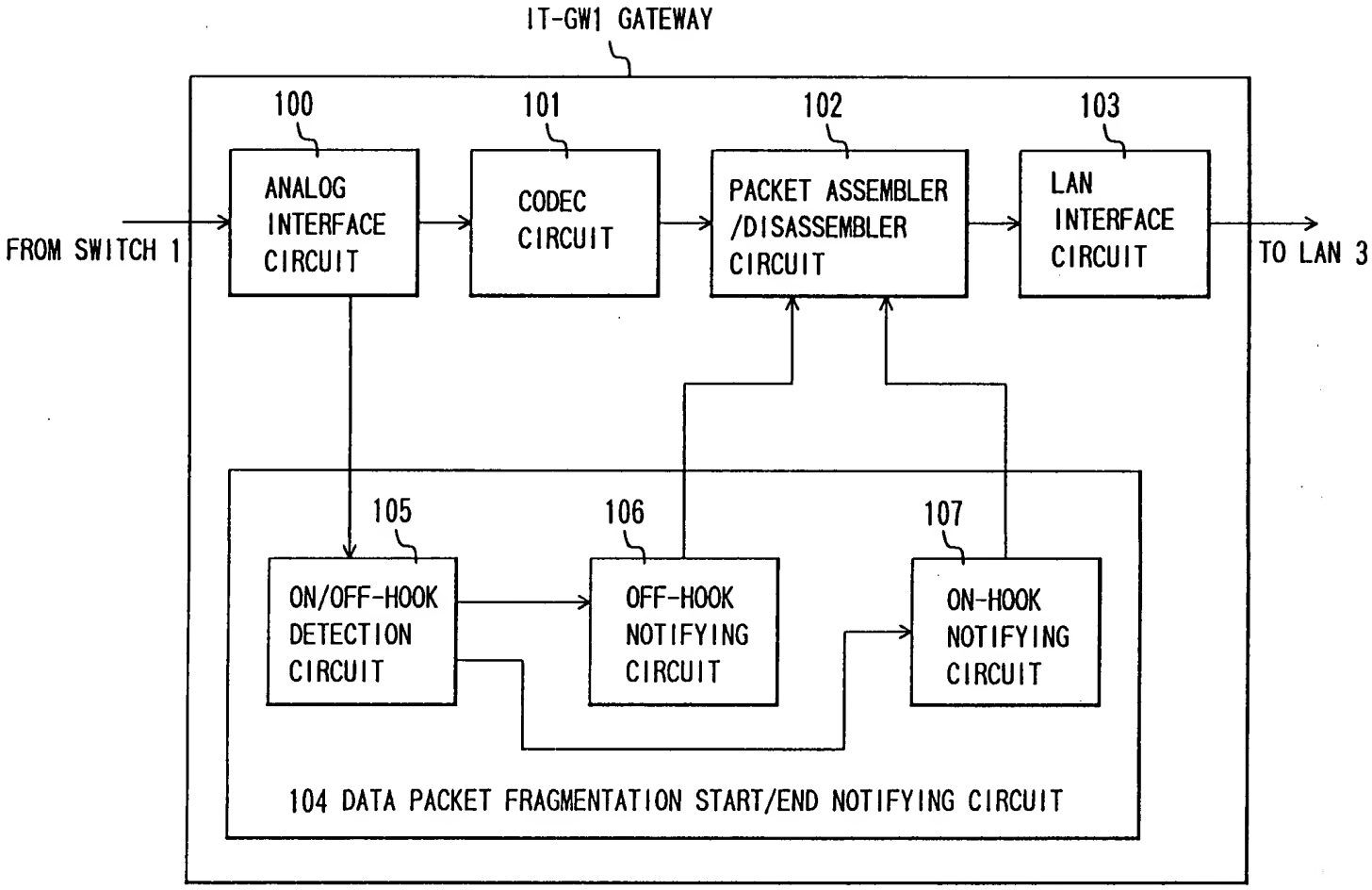

IT-GW1 GATEWAY
100
101
102
103
ANALOG INTERFACE CIRCUIT
CODEC CIRCUIT
PACKET ASSEMBLER /DISASSEMBLER CIRCUIT
LAN INTERFACE CIRCUIT
FROM SWITCH 1
TO LAN 3
105
106
107
ON/OFF-HOOK DETECTION CIRCUIT
OFF-HOOK NOTIFYING CIRCUIT
ON-HOOK NOTIFYING CIRCUIT
104 DATA PACKET FRAGMENTATION START/END NOTIFYING CIRCUIT

FIG.3

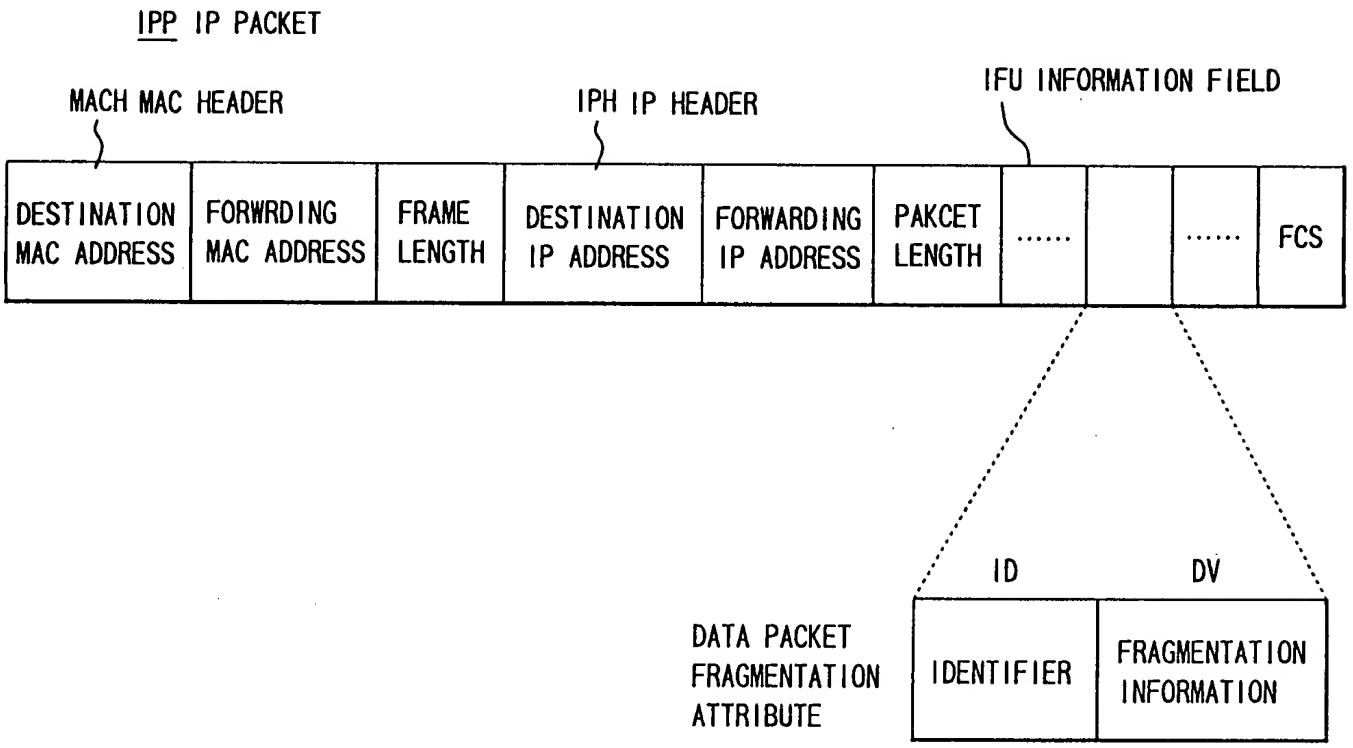

IPP IP PACKET
MACH MAC HEADER
IPH IP HEADER
IFU INFORMATION FIELD
DESTINATION MAC ADDRESS
FORWRDING MAC ADDRESS
FRAME LENGTH
DESTINATION IP ADDRESS
FORWARDING IP ADDRESS
PAKCET LENGTH
.....
.....
FCS
ID
DV
DATA PACKET FRAGMENTATION ATTRIBUTE
IDENTIFIER
FRAGMENTATION INFORMATION

FIG.4

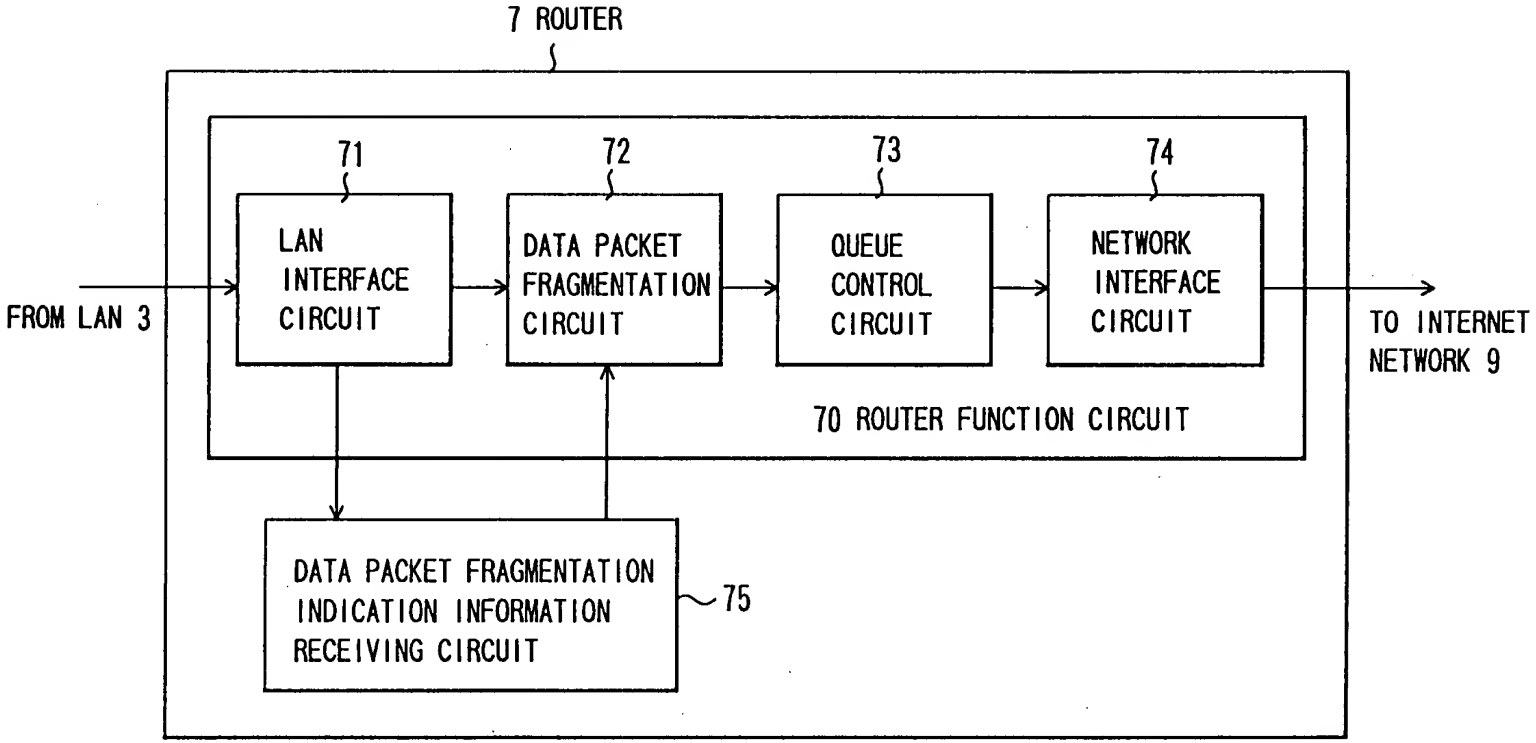

7 ROUTER
71
72
73
74
LAN INTERFACE CIRCUIT
DATA PACKET FRAGMENTATION CIRCUIT
QUEUE CONTROL CIRCUIT
NETWORK INTERFACE CIRCUIT
FROM LAN 3
TO INTERNET NETWORK 9
70 ROUTER FUNCTION CIRCUIT
DATA PACKET FRAGMENTATION INDICATION INFORMATION RECEIVING CIRCUIT
75

FIG.5

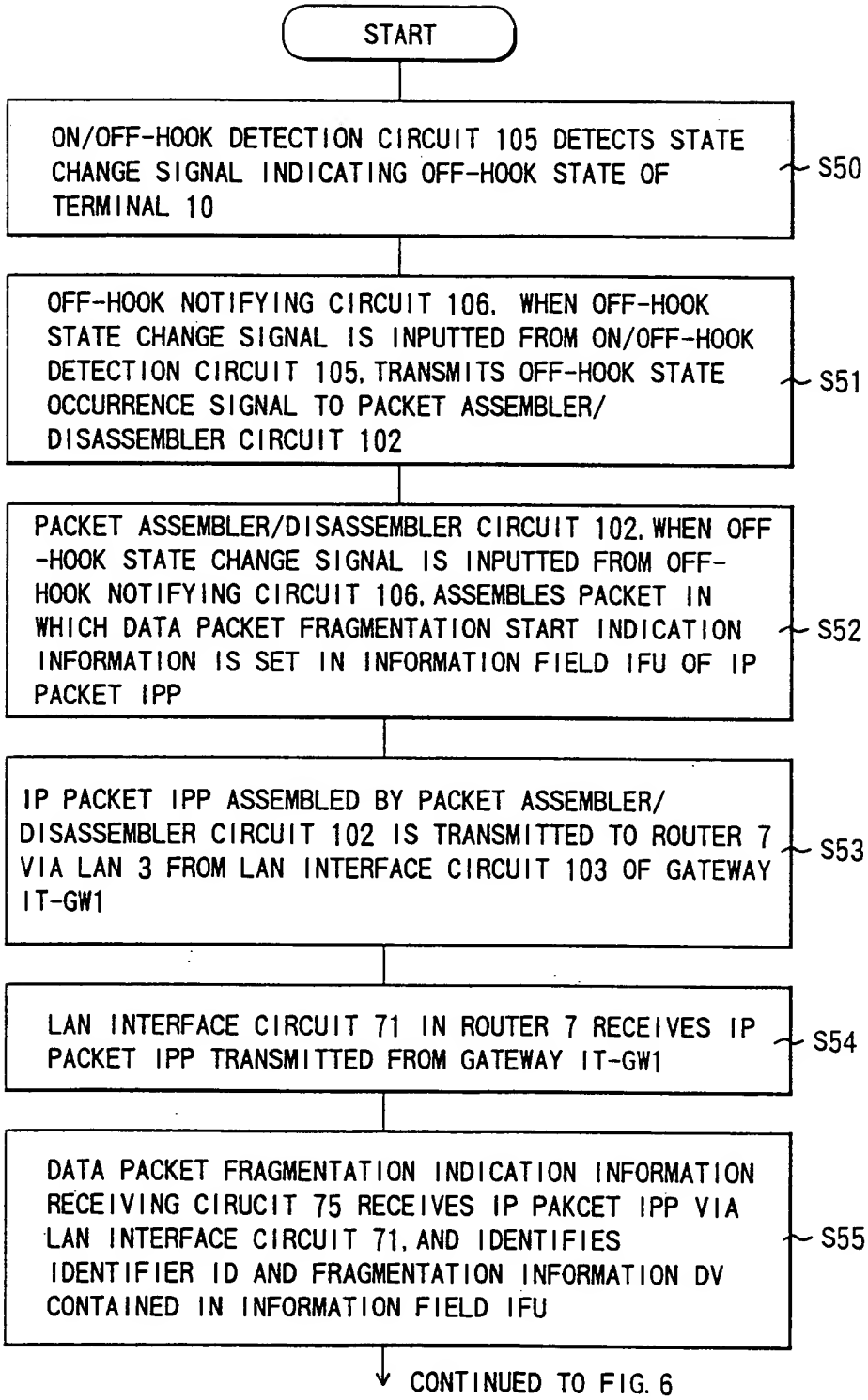

START
ON/OFF-HOOK DETECTION CIRCUIT 105 DETECTS STATE CHANGE SIGNAL INDICATING OFF-HOOK STATE OF TERMINAL 10
S50
OFF-HOOK NOTIFYING CIRCUIT 106, WHEN OFF-HOOK STATE CHANGE SIGNAL IS INPUTTED FROM ON/OFF-HOOK DETECTION CIRCUIT 105, TRANSMITS OFF-HOOK STATE OCCURRENCE SIGNAL TO PACKET ASSEMBLER/ DISASSEMBLER CIRCUIT 102
S51
PACKET ASSEMBLER/DISASSEMBLER CIRCUIT 102, WHEN OFF -HOOK STATE CHANGE SIGNAL IS INPUTTED FROM OFF-HOOK NOTIFYING CIRCUIT 106, ASSEMBLES PACKET IN WHICH DATA PACKET FRAGMENTATION START INDICATION INFORMATION IS SET IN INFORMATION FIELD IFU OF IP PACKET IPP
S52
IP PACKET IPP ASSEMBLED BY PACKET ASSEMBLER/ DISASSEMBLER CIRCUIT 102 IS TRANSMITTED TO ROUTER 7 VIA LAN 3 FROM LAN INTERFACE CIRCUIT 103 OF GATEWAY IT-GW1
S53
LAN INTERFACE CIRCUIT 71 IN ROUTER 7 RECEIVES IP PACKET IPP TRANSMITTED FROM GATEWAY IT-GW1
S54
DATA PACKET FRAGMENTATION INDICATION INFORMATION RECEIVING CIRUCIT 75 RECEIVES IP PAKCET IPP VIA LAN INTERFACE CIRCUIT 71, AND IDENTIFIES IDENTIFIER ID AND FRAGMENTATION INFORMATION DV CONTAINED IN INFORMATION FIELD IFU
S55
CONTINUED TO FIG. 6

FIG.6

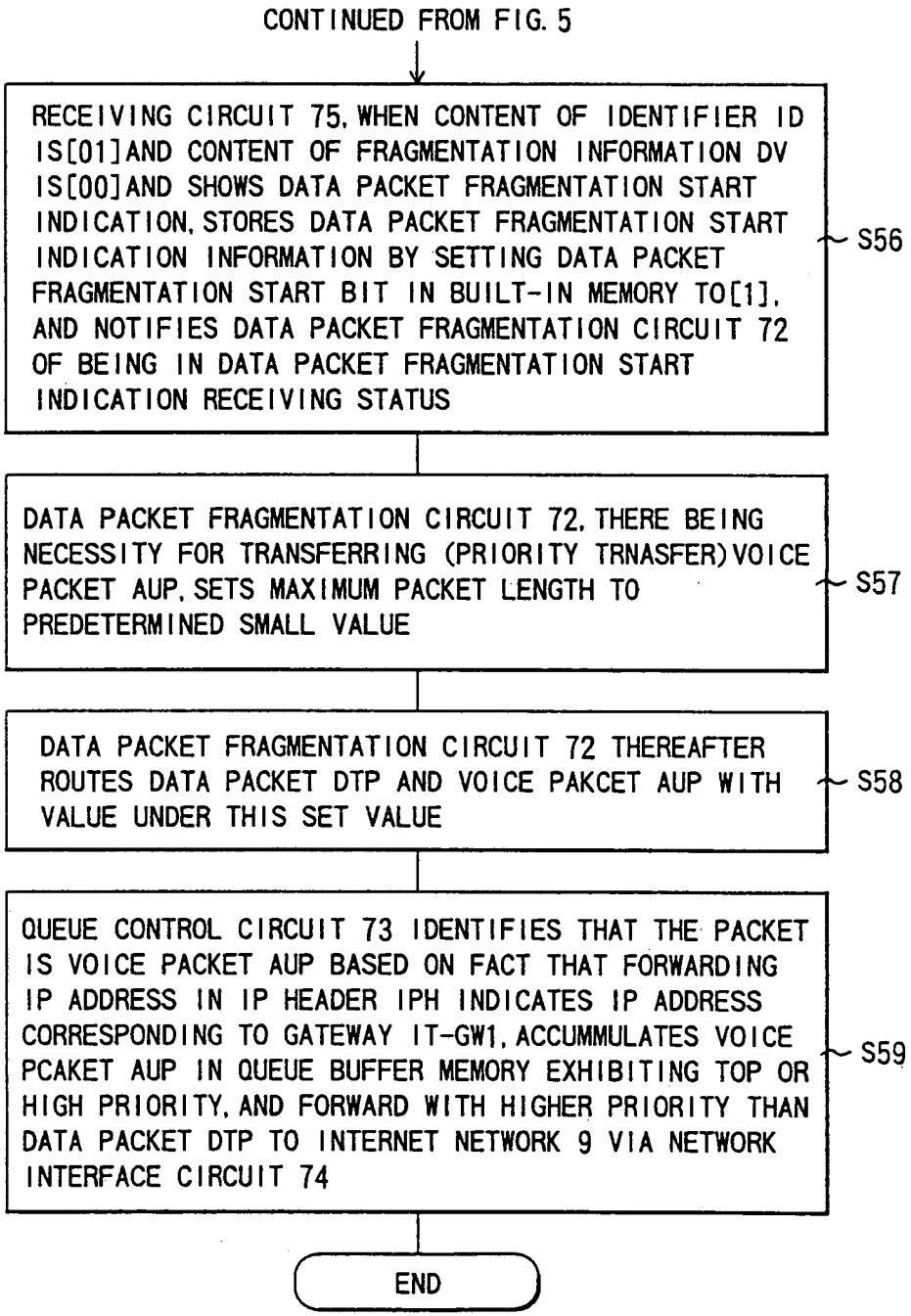

CONTINUED FROM FIG. 5
RECEIVING CIRCUIT 75, WHEN CONTENT OF IDENTIFIER ID IS[01]AND CONTENT OF FRAGMENTATION INFORMATION DV IS[00]AND SHOWS DATA PACKET FRAGMENTATION START INDICATION, STORES DATA PACKET FRAGMENTATION START INDICATION INFORMATION BY SETTING DATA PACKET FRAGMENTATION START BIT IN BUILT-IN MEMORY TO[1], AND NOTIFIES DATA PACKET FRAGMENTATION CIRCUIT 72 OF BEING IN DATA PACKET FRAGMENTATION START INDICATION RECEIVING STATUS
S56
DATA PACKET FRAGMENTATION CIRCUIT 72, THERE BEING NECESSITY FOR TRANSFERRING (PRIORITY TRNASFER) VOICE PACKET AUP, SETS MAXIMUM PACKET LENGTH TO PREDETERMINED SMALL VALUE
S57
DATA PACKET FRAGMENTATION CIRCUIT 72 THEREAFTER ROUTES DATA PACKET DTP AND VOICE PAKCET AUP WITH VALUE UNDER THIS SET VALUE
S58
QUEUE CONTROL CIRCUIT 73 IDENTIFIES THAT THE PACKET IS VOICE PACKET AUP BASED ON FACT THAT FORWARDING IP ADDRESS IN IP HEADER IPH INDICATES IP ADDRESS CORRESPONDING TO GATEWAY IT-GW1, ACCUMMULATES VOICE PCAKET AUP IN QUEUE BUFFER MEMORY EXHIBITING TOP OR HIGH PRIORITY, AND FORWARD WITH HIGHER PRIORITY THAN DATA PACKET DTP TO INTERNET NETWORK 9 VIA NETWORK INTERFACE CIRCUIT 74
S59
END

FIG.7

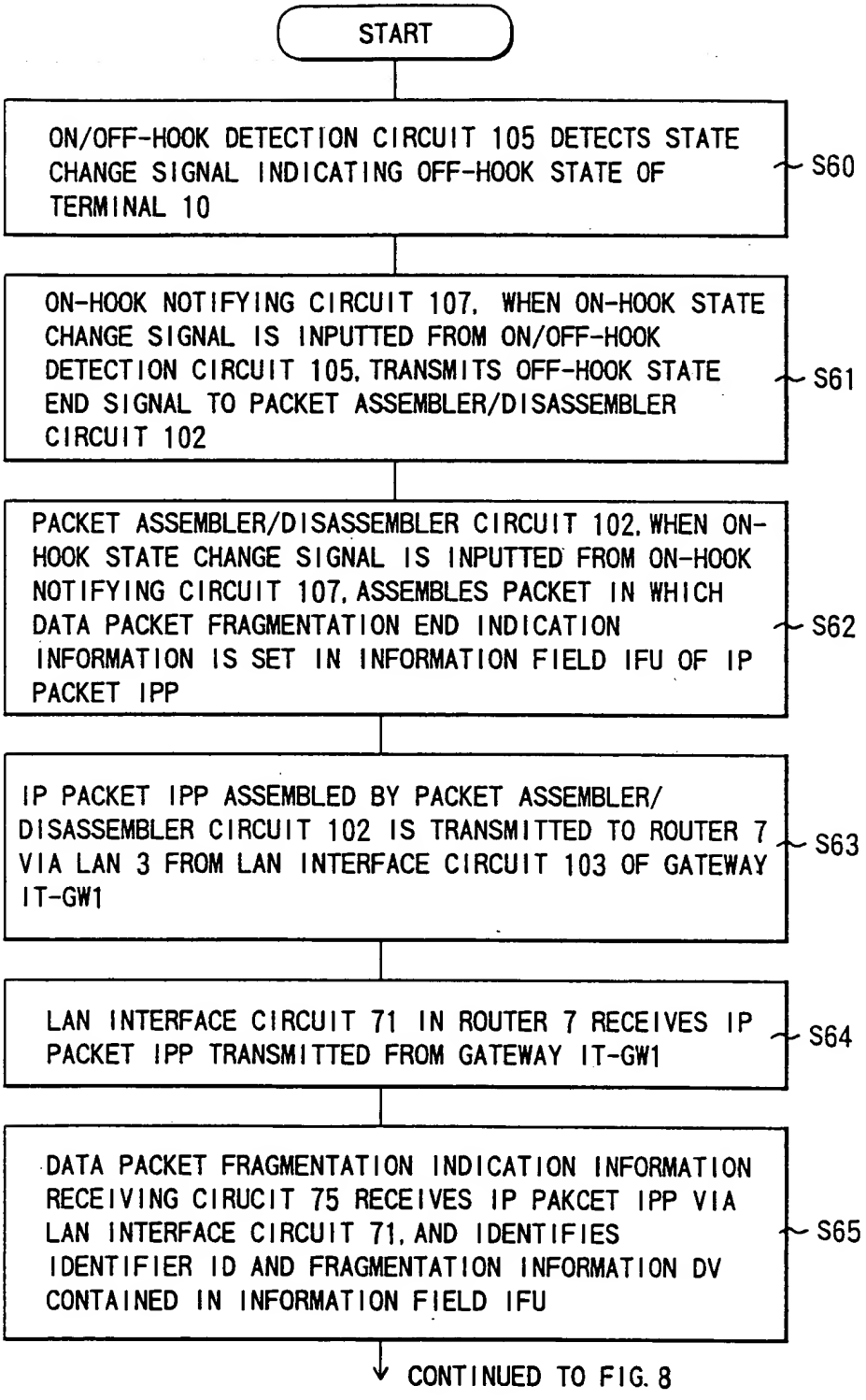
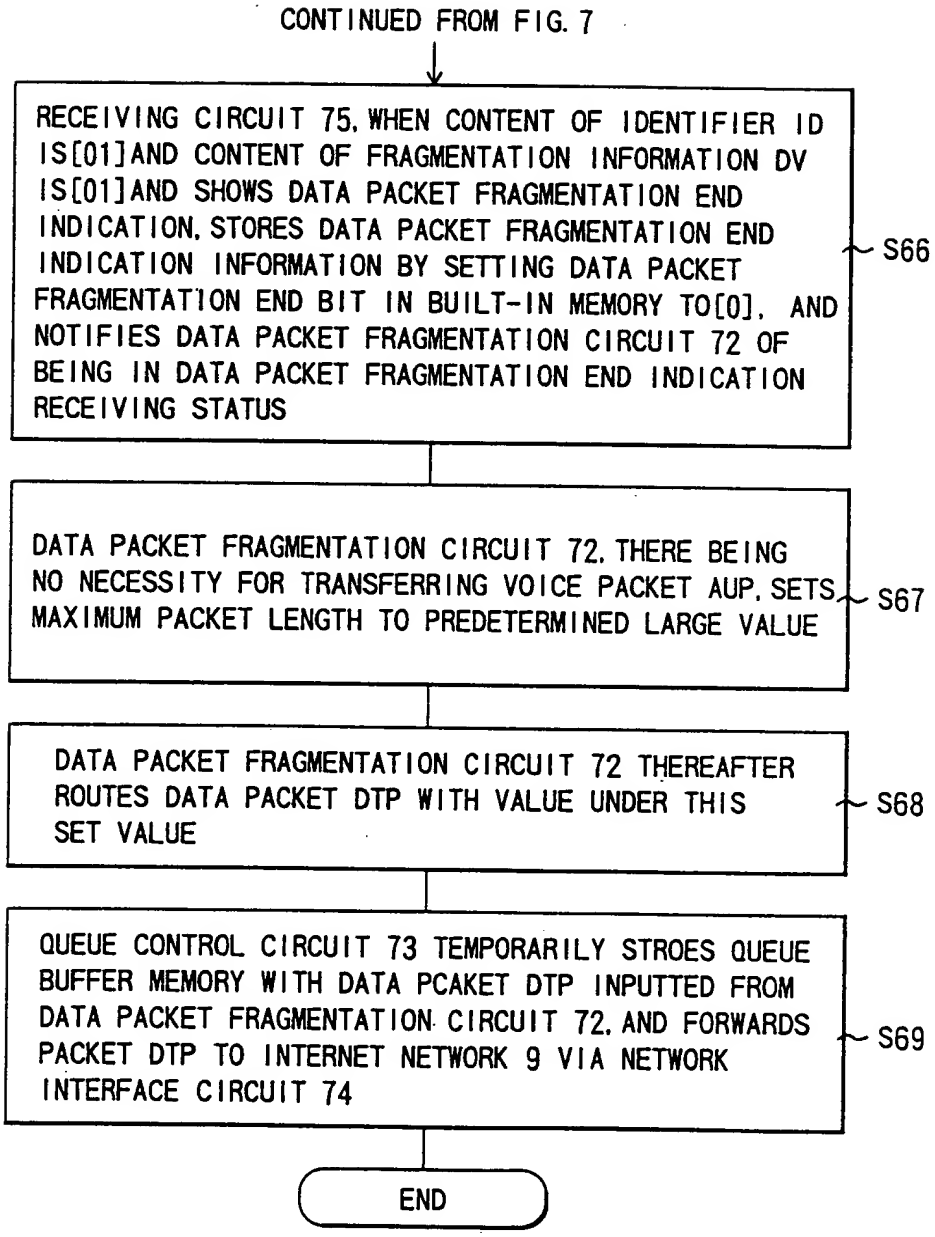

START
ON/OFF-HOOK DETECTION CIRCUIT 105 DETECTS STATE CHANGE SIGNAL INDICATING OFF-HOOK STATE OF TERMINAL 10
S60
ON-HOOK NOTIFYING CIRCUIT 107, WHEN ON-HOOK STATE CHANGE SIGNAL IS INPUTTED FROM ON/OFF-HOOK DETECTION CIRCUIT 105, TRANSMITS OFF-HOOK STATE END SIGNAL TO PACKET ASSEMBLER/DISASSEMBLER CIRCUIT 102
S61
PACKET ASSEMBLER/DISASSEMBLER CIRCUIT 102, WHEN ON-HOOK STATE CHANGE SIGNAL IS INPUTTED FROM ON-HOOK NOTIFYING CIRCUIT 107, ASSEMBLES PACKET IN WHICH DATA PACKET FRAGMENTATION END INDICATION INFORMATION IS SET IN INFORMATION FIELD IFU OF IP PACKET IPP
S62
IP PACKET IPP ASSEMBLED BY PACKET ASSEMBLER/ DISASSEMBLER CIRCUIT 102 IS TRANSMITTED TO ROUTER 7 VIA LAN 3 FROM LAN INTERFACE CIRCUIT 103 OF GATEWAY IT-GW1
S63
LAN INTERFACE CIRCUIT 71 IN ROUTER 7 RECEIVES IP PACKET IPP TRANSMITTED FROM GATEWAY IT-GW1
S64
DATA PACKET FRAGMENTATION INDICATION INFORMATION RECEIVING CIRUCIT 75 RECEIVES IP PAKCET IPP VIA LAN INTERFACE CIRCUIT 71, AND IDENTIFIES IDENTIFIER ID AND FRAGMENTATION INFORMATION DV CONTAINED IN INFORMATION FIELD IFU
S65
CONTINUED TO FIG. 8

FIG.8


CONTINUED FROM FIG. 7
RECEIVING CIRCUIT 75, WHEN CONTENT OF IDENTIFIER ID IS[01]AND CONTENT OF FRAGMENTATION INFORMATION DV IS[01]AND SHOWS DATA PACKET FRAGMENTATION END INDICATION, STORES DATA PACKET FRAGMENTATION END INDICATION INFORMATION BY SETTING DATA PACKET FRAGMENTATION END BIT IN BUILT-IN MEMORY TO[0], AND NOTIFIES DATA PACKET FRAGMENTATION CIRCUIT 72 OF BEING IN DATA PACKET FRAGMENTATION END INDICATION RECEIVING STATUS
S66
DATA PACKET FRAGMENTATION CIRCUIT 72, THERE BEING NO NECESSITY FOR TRANSFERRING VOICE PACKET AUP, SETS MAXIMUM PACKET LENGTH TO PREDETERMINED LARGE VALUE
S67
DATA PACKET FRAGMENTATION CIRCUIT 72 THEREAFTER ROUTES DATA PACKET DTP WITH VALUE UNDER THIS SET VALUE
S68
QUEUE CONTROL CIRCUIT 73 TEMPORARILY STROES QUEUE BUFFER MEMORY WITH DATA PCAKET DTP INPUTTED FROM DATA PACKET FRAGMENTATION CIRCUIT 72, AND FORWARDS PACKET DTP TO INTERNET NETWORK 9 VIA NETWORK INTERFACE CIRCUIT 74
S69
END